TRADITIONAL HOMEGARDEN AND ITS TRANSFORMING TREND

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ABSTRACT

Homegarden is a productive traditional landuse system surrounding the house which is usually planted by a mixture of annual and perennial crops. Homegarden plays important role in fulfilling various daily needs of the household. It is a dynamic system which can change from time to time following the changes of biophysical and social to fulfill the needs of the owner. The changes of structure and function of Homegarden are commonly related to the improvement program, i.e. intensification and commercialization. However, in the improvement program too often high productivity has been set only as a sole goal, while the long-term of sustainability has been neglected leading the destructive changes in the functioning of Homegarden system. Therefore, improvement program should not be weighted solely on its economic potential, but should also be considered on its socio-cultural and natural conservation function.

Keywords : Sustainable Homegarden system

PEKARANGAN TRADISIONAL DAN KECENDERUNGAN PERUBAHANNYA

ABSTRAK

Pekarangan adalah suatu sistem tataguna tanah tradisional yang terletak di sekitar rumah yang umumnya ditanami dengan berbagai tanaman semusim dan tanaman tahunan. Pekarangan mempunyai peranan penting dalam memenuhi berbagai keperluan keluarga sehari-hari. Pekarangan adalah sistem yang dinamis, ia dapat berubah dari waktu ke waktu mengikuti perubahan biofisik dan sosial untuk memenuhi kebuhunan pemiliknya. Perubahan struktur dan fungsi pekarangan umumnya berkaitan dengan program perbaikan pekarangan dalam rangka intensifikasi dan komersialisasi pekarangan. Namun perbaikan pekarangan sering hanya ditujukan untuk mendapatkan produksi yang tinggi, sedangkan produktifitas jangka panjang yang berkelanjutan diabaikan sehingga menyebabkan rusaknya fungsi sistem pekarangan tersebut. Karena itu perbaikan pekarangan hendaknya tidak semata-mata didasarkan pada pertimbangan potensi ekonominya, melainkan harus pula memperhatikan fungsi sosial dan fungsi perlindungan sumberdaya alam.

Kata kunci : Sistem pekarangan terlanjutkan.

Homegarden is a traditional landuse system located surrounding the house consists of a mixture of annual and perennial crops and sometimes animals, particularly small livestock. Homegarden is a sustainable production system which has been practiced for many centuries as a product of trials and errors. This landuse system is conducted by household members which the major aims to supply and supplement their subsistence requirements. The multiple use products of Homegarden contributed importance function to the fulfillment of nutritional and income needs of the household and its multilayered of plant structure ensure its ecological functioning.

The Homegarden system had been practiced by people in West Java since the middle of 18-th century. Central Java was considered the principle center of homegardening in Indonesia (Terra, 1954). Recently, Homegarden has widely developed all over Indonesia, among other due to promotion of transmigration program which is the government program of moving people from Java to other islands.

GENERAL STRUCTURE

The design and pattern of Homegarden varied from place to place but they still have similarity in their basic feature. The Homegarden usually consists of a house surrounded a bare space and cultivated space. A bare space located in the front of the house which called *buruan* (Sundanese). *Buruan* is usually kept clean and used for playing ground of children. Besides, in the afternoon adults often assemble in *buruan* to chat and relax. *Buruan* is also used as a place to hold cultural performance. Because of its social function is not cultivated, except in its corners by one or two big trees for shading purposes. The cultivated space located in the left and right side of the house, in the back part and in the front part adjacent to the *buruan.*

A Homegarden is usually planted with many plant species, a mixture of perennials and annuals of different height forming stratified layers of plant canopy. Because of the stratified structure of the plant species the space of Homegarden is utilized efficiently and solar energy is used by plants successively from the highest to the lower plant layer. A study conducted at Cibakung village of West Java showed that the villagers basically knew the light requirements of almost each plant grown in their Homegarden (Christanty*, et al.,* 1983). If there is discrepancies found between the biological light requirement and site planting of certain species it is not because of ignoring, but due to a certain consideration of the farmer. For example the betle leaves *(Pipper betle)* is biologically shade plant but is grown in full sunlight become yellowish and people prefer the yellowish rather the green ones. Biologically the yellowish leaves are produced by photo-oxidation of the chlorophyll.

A typical structure of Homegarden is it has diversity of plant species. Plant inventory of homegardens in the Citarum watershed of West Java found 602

plant species (Karyono, 1981). On the study conducted at Babakan Cianjur, a small hamlet near Bandung 253 plant species were found in the homegardens (Iskandar, *et al.,* 1979). While study carried out at Bantar Kalong, a small hamlet located in the border between West and Central Java , 288 plant species were found in Homegarden (Abdullah, *et al.,* 1978).

This high species diversity of plant species in fact is higher because several species have many varieties. The studies in West Java reported that there are about 40 varieties of banana, 20 varieties of rambutan, and 25 varieties of mangoe. Other crop such as papaya, mandarin, pamelo have also a great number of plant varieties. Various studies reported that Homegarden plant diversity is greater in the low land area than in the upland area. Sundanese households in West Java appeared to have a greater number of ornamental and vegetable plants in their Homegarden than the Javanese household. While the Javanese households more grow medicinal plant species than the Sundanese. It was observed that homegerdens in the rice field areas are dominated by perennial, particularly fruit crops, whereas in non-rice field areas dominated by annual crops, particularly staple food .

FUNCTION

The main function of Homegarden is to fulfill varies daily needs of the owner. Many plants can serve supplementary foods, vegetables, spices, medicinal drugs and various household utensils. Homegarden also provides carbohydrate, protein, essential vitamins and minerals. Since Homegarden is usually planted with a mixture of annual and perennial cops so that there is always something can be harvested every day around the year. In addition, the major function of Homegarden is to fulfill the subsistence needs; the surplus products are often sold by the owner as an addition cash income.

The old quantitative data on the production values of Homegarden was reported by Osche and Terra (1937) that Homegarden can contribute 18 per cent of the total calories and 14 per cent of the total protein in the daily food intake of the household. Results of more recent studies on Homegarden (among other by Harjadi, 1975; Institute of Ecology Padjadjaran University, 1983) supported Osche and Terra report. These data indicated that the production of Homegarden in terms of cash, calorie, protein, mineral and vitamins varies considerably from village to village, but this agricultural system has an important role to fulfill diet for the people.

Other studies on economic aspects showed that Homegarden product ranges between 5 to 50 per cent of the total income of the households (Stoller, 1975; Hisyam*, et al.*,1980; Abdullah, *et al.*, 1978). The amount of income derived from Homegarden is determined among other by Homegarden size, crop composition, preference and attitude of the owner and ecological factors. In general the gross income of Homegarden is lower than from the rice field, but its net income is higher due to low cost production. There was some evidence that in some places

the income of Homegarden could higher compared to that of the rice field. For example Penny and Singarimbun (1973) reported based on their study at Sriharjo village in Central Java, that the rice field which averaged 0.23 ha per household and cultivated twice in a year contributed 35 per cent of net income, while Homegarden of an average of 0.10 ha per household gave 49 per cent of their net income.

Homegarden has a significant social function and also can be considered as a symbol of social status. People who have small Homegarden or do not own it, are considered a lower social rank. The *buruan* which is not planted and kept clean from litter has important social purposes. Because of the social function homegardens are typically open. Many Homegarden often have a fence but in fact it is not completely closed. It means that the concept of treespacing does not exist in the villages. People can freely enter Homegarden of their neighbor without permission and even the harvested products, particularly fruits are usually shared with their neighbors. These social values are still receiving a high priority in the village life. However, such value is diminishing in the city or in the villages near the city. Most of Homegarden in urban areas are completely closed, the sense of private ownership is stronger, and less social function and people only enter neighbor Homegarden by permission.

Homegarden has a rich genetic resources due to high diversity of plant species and varieties. Many of plants are still wild or semi wild and do not have economical values, but these plants may be drawn upon for future breeding to increase their quality and quantity of yields. The high diversity of plant species which form the stratified structure resulting an important role in soil and water conservation. Stratification of plant canopy effectively protects the soil against erosion by action of rain. A study of erosion in Homegarden showed that the splash erosion was only 80 per cent of that in the open space (Ambar, 1986). This erosion rate will increase significantly when undergrowth vegetation and litter are removed.

There is also an effective recycling system of wastes in Homegarden (Soemarwoto and Soemarwoto, 1979). Animal wastes are mixed with mud from fishpond and composted. The compost is used for fertilizer. Plants and fish are harvested by man. Besides, the fallen leaves outside the *buruan* are left to decompose resulting easier infiltration of the rainwater into the soil and in the same time protect the soil erosion affected by rain drops. This recycling and the protection against soil erosion maintain the soil fertility of Homegarden. Other role of Homegarden is its aesthetic function. This function is reflected by the existence of ornamentals which are usually planted in the front of the house. The number of ornamental species and their aesthetic function are greater in the Homegarden closer to the city and the higher socio economic status of the owner.

SPATIAL ARRANGEMENT

Although the Homegarden may present the appearance of a haphazard combination of tress, shrubs, herbs, climbers and creeping plants, in fact these plants are not grown at a random planting. The crops are cultivated based on certain custom, experiences of trails and errors, consideration and wisdom of the villagers. People did selection sites of each crops.

Determinant factors for selecting sites of planting among other are the following (Hisyam*, et al.,* 1980; Christanty, *et al,* 1983): the requirement of light, water and soil fertility, efficiency of space utilization, aesthetic and practical consideration, security and crop protection.

As mentioned before, ornamental are mostly planted in the front of the house for aesthetic purposes. Food crops, cash crops, medicinal plants are gown more frequently in back and front part rather than in side part of a house. Vegetables usually planted in the front and side parts. The high water requirement plant such as taro and many vegetables are grown close to the latrine and fishpond in the back part of the house. Plants used for daily cooking are planted close to the kitchen. In most Homegarden leaf vegetables which are periodically harvested for cooking are often planted on the border or hedges of the garden to ensure accessibility of harvesting and to avoid damage to other crops. Shrubs are used as a living fence grown on the edges of Homegarden to protect crops from goat and other livestock. These living fences are used for climbing of melons, cowpeas and other plant climbers. The tall trees, i.e. durian and coconut are grown in the back away from the house to avoid any damage.

Studies of plant association in Homegarden supported those consideration and wisdom of the farmer in site selection and planting pattern (Karyono, 1981). These studies showed that species composition were apparently chosen to complement each other in fulfilling a variety needs of the household.

TRANSFORMING TREND

Although homegardens in rural area are traditional but their structure and function are not static. Structure and function of Homegarden may change from time to time following the changes of physical condition and changes of its function to fulfill the needs of the owner. When a development project was constructed in a village then a gradual change of Homegarden can be observed. For example, in the tourism area the ornamental and fruit crops are more grown in Homegarden to serve tourist demands and to obtain more cash. The new construction or improvement of road to link villages to a city with a better transportation facilities will encourage the aesthetic function of Homegarden. It was reported that the closer Homegarden to city, the better transportation system, the better quality of housing and the higher social status of household, the more aesthetic value of Homegarden and the less its subsistence production function (Karyono, 1981).

The increased human density due to increasing of population and growing demand for cash have induced the transformation of traditional Homegarden into a modern system which is dominated by valuable commercial tree crops. The increasing economic status of rural areas due to successive economic development plan has been considerable growth in the number of middle class people who can afford a high quality of housing and nutrition. Rural Homegarden responded this change by improving the quality of foods, fruits, vegetables, selecting for those varieties and species with a high market demand (Soemarwoto and Conway, 1992). As a consequence, many plant species considered uneconomical are eliminated and replaced by high yielding species that give more cash. Soemarwoto (1978) reported only four banana varieties and one mango variety found in Depok, the main fruit producing district near Jakarta. In Cirebon areas only 48 mango varieties were recorded, whereas Van Vijn in 1928 reported there were 75 varieties in the same areas.

In many villages the introduction of higher inputs and improved technology in Homegarden are also happened both spontaneously or stimulated by the government. Improved varieties of clove, citrus, coconut and vegetables also chicken, rabbits have been widely introduced in rural Homegarden.

An intensive Homegarden study carried out in Cibitung village near Bogor of West Java, illustrated the structural changes due to transformation process (Michon and Mary, 1991). Specific richness is reduced from more than 50 plant species in traditional Homegarden to a maximum of 10 species in transforming plot, even at the extreme Homegarden become mono-specific. Traditional Homegarden in this area had high specific richness and diversity their closed-cover and layered canopy could be compared to the natural forest. In comparison, transformed Homegarden are highly artificial in term of structure and productivity, Therefore their maintenance, production and reproduction require increased human control.

Other study carried out in a small village of Cihampelas located near the Saguling reservoir (Hadikusumah *, et al.*,` 1990) reported that the succession of plant species in homegerden was being occurred due to the impact of Saguling dam construction. Plant inventory showed that the number of ornamental increased very significantly, whereas the vegetables, fruit species slightly decreased. Transforming process is also commonly linked to Homegarden nutrition improvement program through the intensification and diversification of selected vegetable species in the Homegarden and the promotion of a small livestock, fish and poultry package program.

Although the commercialization of Homegarden have been benefited for gardener, but their long term of stability and sustainability are still questionable. The dominance of a certain crop increases the risk of losses due to its specific pest and diseases. Soemarwoto (1978) indicated that although on paper net annual income may have increased, but welfare may actually have decreased. It

is because the commercialization of Homegarden requires more input and capital as credit from the bank. And frequently this results in villagers falling into the hands of moneylenders.

The seasonality of many cash crops harvests also results in sudden large income which tend to be used for unproductive rather than reinvestment in the Homegarden. Commercialization also result in a reduction of equitability (Soemarwoto and Conway, 1992). There is less sharing of harvest, even with relatives.

Indeed the development improvement of Homegarden are needed to increase their yields but how Homegarden should be improved to maintain their stability and productivity. Paying attention solely to economic and nutritional gains of Homegarden run the risk of sacrificing the ecological and social values.

The possible improvement of existing Homegarden should be through a better designed planting pattern based on selection of species and varieties in term of such variables as nutrient content in the produce and market demand as well as light tolerance and root structure. Plant design should retain the combination of perennial trees with annuals and should preserve the traditional recycling system. In addition development of post harvest technology of Homegarden products is also needed such as the processing of fruits to jams and juices, of bamboo and wood to household utensils and furniture. To meet such improvement approach it should be supported by the knowledge on structure and various function of Homegarden and plant requirements of water, sunlight and other environmental requirement factors.

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